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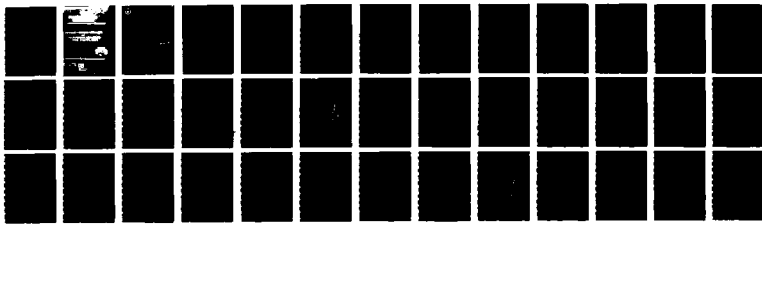
ENVIRONMENTAL ASSESSMENT: EROSION CONTROL PROJECTS AT
SAYLORVILLE RESERVOIR POLK COUNTY IOWA(U) ARMY ENGINEER
DISTRICT ROCK ISLAND IL JUL 86

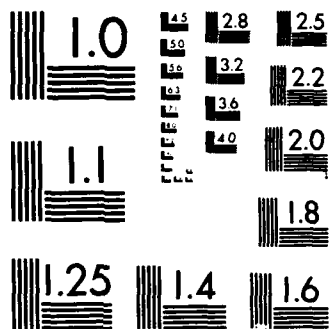
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EROSION CONTROL

**SAYLORVILLE
POLK COUNTY**

JULY 1986

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ENVIRONMENTAL ASSESSMENT
EROSION CONTROL PROJECTS
AT
SAYLORVILLE RESERVOIR
POLK COUNTY, IOWA

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ENVIRONMENTAL ASSESSMENT

EROSION CONTROL PROJECTS

AT

SAYLORVILLE RESERVOIR

POLK COUNTY, IOWA

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ATTACHMENTS

Finding of No Significant Impact (FONSI)

Clean Water Act, Section 404(b)(1) Evaluation

DISTRIBUTION LIST

ENVIRONMENTAL ASSESSMENT
EROSION CONTROL PROJECTS
AT
SAYLORVILLE RESERVOIR
POLK COUNTY, IOWA

I. PURPOSE AND NEED FOR ACTION.

The purpose of this action is to provide erosion protection to six sites at or just downstream of Saylorville Reservoir, Polk County, Iowa. Erosion has occurred during periods of high water along the berm of an access road and along the shorelines of five recreation sites. Protection is needed to prevent the loss of facilities as well as additional land at these sites. Plate 1 shows the general locations of the project sites.

II. PROJECT DESCRIPTION.

Erosion protection is proposed at six areas. Site-specific details are listed below.

Area 1 - Cottonwood Recreation Area. Approximately 1,800 feet of shoreline would be riprapped. Construction would consist of shaping the slope by the cut and fill method and placing 6 inches of bedding rock and 18 inches of riprap. The base of the riprap would be keyed into the river bottom, or a 10-foot-wide by 2-foot-thick toe protection would be added. Of the 1,800 feet of shoreline proposed for riprapping, 1,000 feet would contain existing riprap placed under emergency conditions without shaping the slope. This riprap would be pushed to the base and used as part of the toe. Plate 2 gives a site-specific location of this area plus a typical cross section.

Area 2 - Fisherman's Pier. The length of the shoreline to be riprapped is 235 feet. Of this, 75 feet is existing riprap and would be refurbished by adding 18 inches of new material. Of the remaining 160 feet, a 6-inch layer of bedding rock and an 18-inch layer of riprap would be placed without any shaping of the slope (see plate 3).

Area 3 - Bob Shetler Recreation Area. Approximately 2,300 feet of shoreline would be riprapped. The bank would be shaped and 6 inches of bedding and 24 inches of riprap placed. The base of the riprap would be keyed into the river or a 10-foot-wide by 2-foot-thick toe added for protection (see plate 4).

Area 4 - Lakeview Boat Ramp. Approximately 700 feet of shoreline adjacent to the boat ramps would be riprapped. This includes 6 inches of bedding and 24 inches of riprap. No shaping of the slopes would be done (see plate 5).

Area 5 - Cherry Glen Boat Ramp. Approximately 800 feet of shoreline would be riprapped. This includes the placement of 6 inches of bedding rock and 24 inches of riprap. Again, no shaping of the bank would be done (see plate 6).

Area 6 - NW. 98th Street. This road provides access to the Oak Grove Recreation Area. The berm of the road is eroding where it crosses a minor drainage. It is proposed to extend the base of the road berm out approximately 20 feet on both sides of the road to provide a more gentle, stable slope. The concrete box culvert under the road would be extended on the southern berm and raised 8 feet on the northern berm. The length of the road berm is 250 feet and would require 3,500 cubic yards of earthen fill (see plate 7).

III. ALTERNATIVES.

The two alternatives considered for the project are highlighted below.

A. No Federal Action. No action would be taken under this alternative. The shorelines would continue to erode, with the eventual loss of recreational facilities. This is not the preferred alternative.

B. Bank Stabilization. This alternative would utilize the construction items listed previously under "Project Description." It would prevent further erosion at the described sites and is therefore the preferred alternative.

IV. AFFECTED ENVIRONMENT.

Three of the six proposed sites are along the Des Moines River below Saylorville Dam. These are the Fisherman's Pier and the Bob Shetler and Cottonwood Recreation Areas. Approximately 4,335 feet of river shoreline is proposed to be riprapped. The streambanks are generally composed of sand and because of active erosion are devoid of vegetation. About 1,075 feet of shoreline contains existing riprap that will be redone as previously described in "Project Description." The land adjacent to the shoreline consists of 2,435 feet of barren ground, mown grass, or uncut grasses and forbs, and the remaining 1,900 feet is bottomland forest consisting of the following species: silver maple (Acer saccharinum); box elder (Acer negundo); cottonwood (Populus deltoides); hackberry (Celtis occidentalis); green ash (Fraxinus pennsylvanica var. subintegerrima); and willow (Salix sp.).

Approximately 1,500 feet of shoreline would be riprapped along the Cherry Glen and Lakeview boat ramps. These sites are located along the shoreline of Saylorville Reservoir and consist of barren ground to scattered patches of adventitious weeds and forbs.

The NW. 98th Avenue project site consists of steeply sloped 250-foot-long manmade road berm and an adjacent 20-foot-wide strip of land at the base of the berm on both sides of the road. Vegetation consists of giant ragweed (Ambrosia trifida); yellow sweet clover (Melilotus officinalis); prickly

lettuce (Lactuca serriola); poison ivy (Rhus radicans); jewelweed (Impatiens sp.); common ragweed (Ambrosia artemisiifolia); peppergrass (Lepidium sp.); shepard's-purse (Capsella bursa-pastoris); mullein (Verbascum thapsus); rose (Rosa sp.); bedstraw (Galium sp.); and spearmint (Mentha spicata). A single small to medium-sized box elder, elm, and honey locust (Gleditsia triacanthos) also occur at the base of the southern berm.

Earthen borrow for the berm widening will come from a previous borrow site adjacent to the roadway. Vegetation is dominated in areas by yellow sweet clover but also includes small box elder, dogwood (Cornus sp.), mullein, brome grass (Bromus sp.), rose, jewelweed, and grape (Vitis sp.).

Wildlife use of the project areas is limited because of active human use and lack of good cover. The sites are likely to be used by nocturnal species and by smaller mammals and birds for foraging activities. However, less disturbed lands adjacent to the project area do provide good habitat for a wide range of species.

The tailwaters below Saylorville Dam provide good fisheries and are heavily used by fishermen. The reservoir also provides a good fishery and is stocked by the Iowa Department of Conservation. Common species include largemouth bass, walleye, northern pike, wiper, catfish, crappie, carp, carpsucker, sucker, buffalo, and gizzard shad.

V. ENVIRONMENTAL CONSEQUENCES OF PREFERRED ACTION.

The effects of the preferred plan are summarized in table EA-1.

A. Social Impacts of Preferred Action.

1. Noise. Minor noise levels would occur as a result of construction and transport of materials. Users at the recreational sites would be temporarily affected; however, no homes, schools, or hospitals are near the project sites and no significant impacts are expected.

2. Displacement of People. All work will take place on Government land; no people will be displaced.

3. Aesthetic Values. The riprapping will displace the natural appearance of the shoreline; however, this will be compatible with the adjacent developed recreational areas.

4. Desirable Community Growth. The proposed projects will have no effect on community growth.

5. Community Cohesion. The proposed project will have no effect on community cohesion.

B. Economic Impacts of the Preferred Action.

1. Local Property Values. All erosion protection will involve Federal lands only. Local property values will not be affected.

TABLE EA-1

Effects of the Recommended Plan on
Natural and Cultural Resources

<u>Types of Resources</u>	<u>Authorities</u>	<u>Evaluation of Effects</u> ^{1/}
Air quality	Clean Air Act, as amended (42 U.S.C. 1857h-7 et seq.)	Temporary, minor effects during construction
Areas of particular concern within the coastal zone	Coastal Zone Management Act of 1972, as amended (16 U.S.C. 1451 et seq.)	Not present in planning area.
Endangered and threatened species critical habitat	Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.)	No effect.
Fish and wildlife habitat	Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.)	Temporary, minor effects resulting from construction.
Floodplains	Executive Order 11968, Flood Plain Management	In compliance.
Historic and cultural properties	National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 et seq.)	No significant effects
Prime and unique farmland	CEQ Memorandum of 1 August 1980; Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing the National Environmental Policy Act	No effect.
Water quality	Clean Water Act of 1977, as amended (33 U.S.C. 1251 et seq.)	No significant impacts. Section 404(b)(1) evaluation completed and State 401 certification applied for.
Wetlands	Executive Order 11990, Protection of Wetlands, Clean Water Act of 1977, as amended (42 U.S.C. 1857h-7 seq.)	No effect.
Wild and scenic rivers	Wild and Scenic Rivers Act, as amended, (16 U.S.C. 1271 et seq.)	Not present in planning area.

^{1/} If a type of resource is not present in the planning area, enter "Not present in planning area." If a type of resource is not affected, enter "No effect."

2. Local Tax Revenues. The proposed projects will not affect local tax revenues.

3. Public Facilities and Services. The proposed projects will have a positive impact by providing shoreline erosion protection to public recreational facilities and services.

4. Regional Growth. Regional growth will not be affected.

5. Employment-Labor Force. Some temporary job opportunities may result during project construction; however, no significant changes in the employment-labor force are anticipated.

6. Business and Industrial Activity. Bedding rock and riprap will be purchased from local quarries, but the proposed projects would have no long-term effect on businesses or industries.

7. Farm Displacement. No farms or farmlands would be displaced.

C. Environmental Impacts.

1. Manmade Resources. No manmade resources will be significantly affected.

2. Natural Resources. Impacts to the vegetative cover would be negligible. Many of the project areas contain barren ground or mown grass. However, a number of trees adjacent to the shoreline at the Bob Shetler and Cottonwood Recreation Areas would be lost as a result of shaping the streambank prior to the placement of riprap. These trees, plus others, would likely be lost through continued erosion.

Impacts to fish and wildlife also would be minor. The quality of wildlife habitat of the project areas is limited because of their lack of good cover, intense human use, and their generally developed nature. Aquatic habitat adjacent to these sites is also limited. Active erosion does not provide a stable substrate for benthos or for fish. The placement of riprap would stabilize the bank. Crevices within the rock would provide shelter for fish and invertebrates. Therefore, no significant impacts are anticipated.

3. Air Quality. Minor, temporary impacts will occur from the exhaust of machinery and dust created during construction.

4. Water Quality. Minor, temporary increases in turbidity will occur as a result of these projects. The projects at Bob Shetler, Cherry Glen, Lakeview, and Cottonwood Recreation Areas and the handicapped fishing pier will require compliance with Section 404 of the Clean Water Act. A Section 404(b)(1) Evaluation has been prepared and Section 401 Certification has been applied for from the State of Iowa and will be obtained prior to construction.

5. Cultural Resources. Impacts to cultural resources were evaluated using Benn and Bettis (1981), Benn and Harris (1983), Benn and Rogers (1985), Stanley and Benn (1985), Benn (1986a, 1986b), and Bettis and Hoyer (1986). The results of the evaluation are as follows:

- Area 1, Cottonwood - surveyed, no sites found, no effect
- Area 2, Fisherman's Pier - surveyed, no sites found, no effect
- Area 3, Bob Shetler - surveyed, no sites found, no effect
- Area 4, Lakeview Boat Ramp - surveyed, no sites found, no effect
- Area 5, Cherry Glen Boat Ramp - surveyed, no sites found, no effect
- Area 6, Oak Grove - surveyed, no sites found, no effect

All of the areas covered under this environmental assessment have been surveyed in recent years and no sites were found at project sites; hence, no effects to intact significant cultural resources are anticipated. The project areas are cleared for construction under the second addendum to the Memorandum of Agreement for the Saylorville Lake Archeological District which applies to recreation areas.

VI. ENVIRONMENTAL IMPACTS OF NONPREFERRED ALTERNATIVE.

With no Federal action, the temporary and immediate impacts of construction would not occur; however, this likely would result in the loss of recreational facilities and in the long-term bottomland forest along the shoreline.

VII. PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED.

Exhaust and dust from construction equipment, the loss of vegetation, and temporary increases in turbidity during construction cannot be avoided.

VIII. ANY IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD BE IMPLEMENTED.

The purchase of materials and the commitment of man-hours, fuel, and machinery to perform the project are irretrievable.

IX. RELATIONSHIP BETWEEN SHORT-TERM USE OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY.

The riprapping will provide long-term protection to recreational facilities. The initial loss of shoreline vegetation during construction will be offset over the long term by the prevention of additional losses from erosion.

No long-term effects would occur with the road berm widening of NW. 98th Street or the use of the borrow area. Once construction is completed, both sites would be vegetated.

X. RELATIONSHIP OF THE PROPOSED PROJECT TO LAND-USE PLANS.

The proposed projects are designed to protect recreational facilities on lands zoned for that purpose.

XI. COMPLIANCE WITH ENVIRONMENTAL QUALITY STATUTES.

A summary of compliance can be found in table EA-2.

A. Endangered Species. There are no federally listed threatened or endangered species listed for Polk County, Iowa. Verbal communication with U.S. Fish and Wildlife, Rock Island Field Office, has confirmed that no species would be affected.

B. Cultural Resources. Previous surveys have indicated that no sites are within the project areas and no effect on significant cultural resources are anticipated. The project is cleared for construction under the second addendum to the Memorandum of Agreement for the Saylorville Lake Archeological District, which applies to recreational areas.

C. Federal Water Project Recreation Act. The proposed projects are intended to provide protection to recreational lands and facilities.

D. Fish and Wildlife Coordination Act. Biologists from the U.S. Fish and Wildlife Service and the Iowa Conservation Commission were contacted during the preparation of this EA. Further coordination will be made through the distribution of this EA.

E. Executive Order 11988, Flood Plain Management. The proposed projects would provide erosion protection to recreational facilities that are generally water oriented in nature and require that they be within the floodplain.

F. Wild and Scenic Rivers. No wild or scenic rivers are present within the project area.

G. Executive Order 11990, Protection of Wetlands. No wetlands would be affected by the projects.

H. Clean Water Act. A Section 404(b)(1) Evaluation has been prepared for the proposed riprap projects (see attached) and 401 Certification from the State of Iowa has been applied for and will be received prior to any construction.

I. Clean Air Act. Minor, temporary impacts of increased dust and exhaust will occur during construction. No air quality standards should be violated.

XII. CONCLUSIONS.

The proposed projects would riprap approximately 5,835 feet of shoreline plus widen the berm of an access road 20 feet, for a length of 250 feet on both sides of a road. The proposed actions will provide erosion protection to recreational lands and facilities. There will be immediate losses of vegetation from the placement of riprap and berm widening, but long-term net benefits will be derived with the prevention of losses through gradual erosion.

TABLE EA-2

Relationship of Plans to Environmental Protection
Statutes and Other Environmental Requirements

Federal Policies	Compliance ^a
Archeological and Historic Preservation Act, 16 U.S.C. 469, et seq.	Full Compliance
Clean Air Act, as amended, 42 U.S.C. 1857h-7, et seq.	Full Compliance
Clean Water Act (Federal Water Pollution Control Act), 33 U.S.C. 1251, et seq.	Full Compliance
Coastal Zone Management Act, 16 U.S.C. 1451, et seq.	Not Applicable
Endangered Species Act, 16 U.S.C. 1531, et seq.	Full Compliance
Estuary Protection Act, 16 U.S.C. 1221, et seq.	Not Applicable
Federal Water Project Recreation Act, 16 U.S.C. 460-1(12), et seq.	Full Compliance
Fish and Wildlife Coordination Act, 16 U.S.C. 611, et seq.	Full Compliance
Land and Water Conservation Fund Act, 16 U.S.C. 460/-460/-11, et seq.	Not Applicable
Marine Protection, Research and Sanctuary Act, 33 U.S.C. 1401, et seq.	Not Applicable
National Environmental Policy Act, 42 U.S.C. 4321, et seq.	Full Compliance
National Historic Preservation Act, 16 U.S.C. 470a, et seq.	Full Compliance
Rivers and Harbors Act, 33 U.S.C. 403, et seq.	Full Compliance
Watershed Protection and Flood Prevention Act, 16 U.S.C. 1001, et seq.	Not Applicable
Wild and Scenic Rivers Act, 16 U.S.C. 1271, et seq.	Not Applicable

NOTES

a. Full Compliance. Having met all requirements of the statute for the current stage of planning (either preauthorization or postauthorization).

b. Partial Compliance. Not having met some of the requirements that normally are met in the current stage of planning. Partial compliance entries should be explained in appropriate places in the report and referenced in the table.

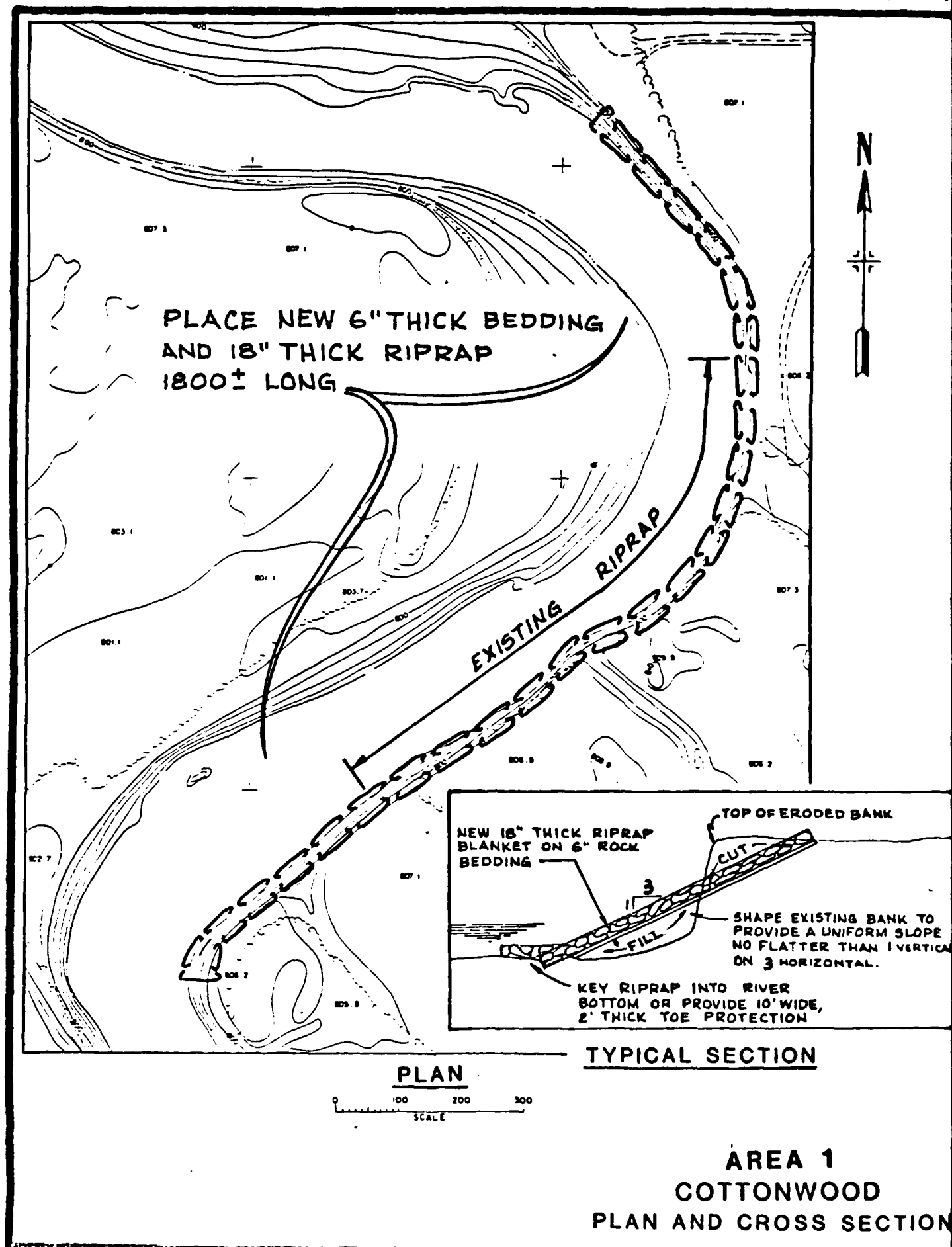
c. Noncompliance. Violation of a requirement of the statute. Noncompliance entries should be explained in appropriate places in the report and referenced in the table.

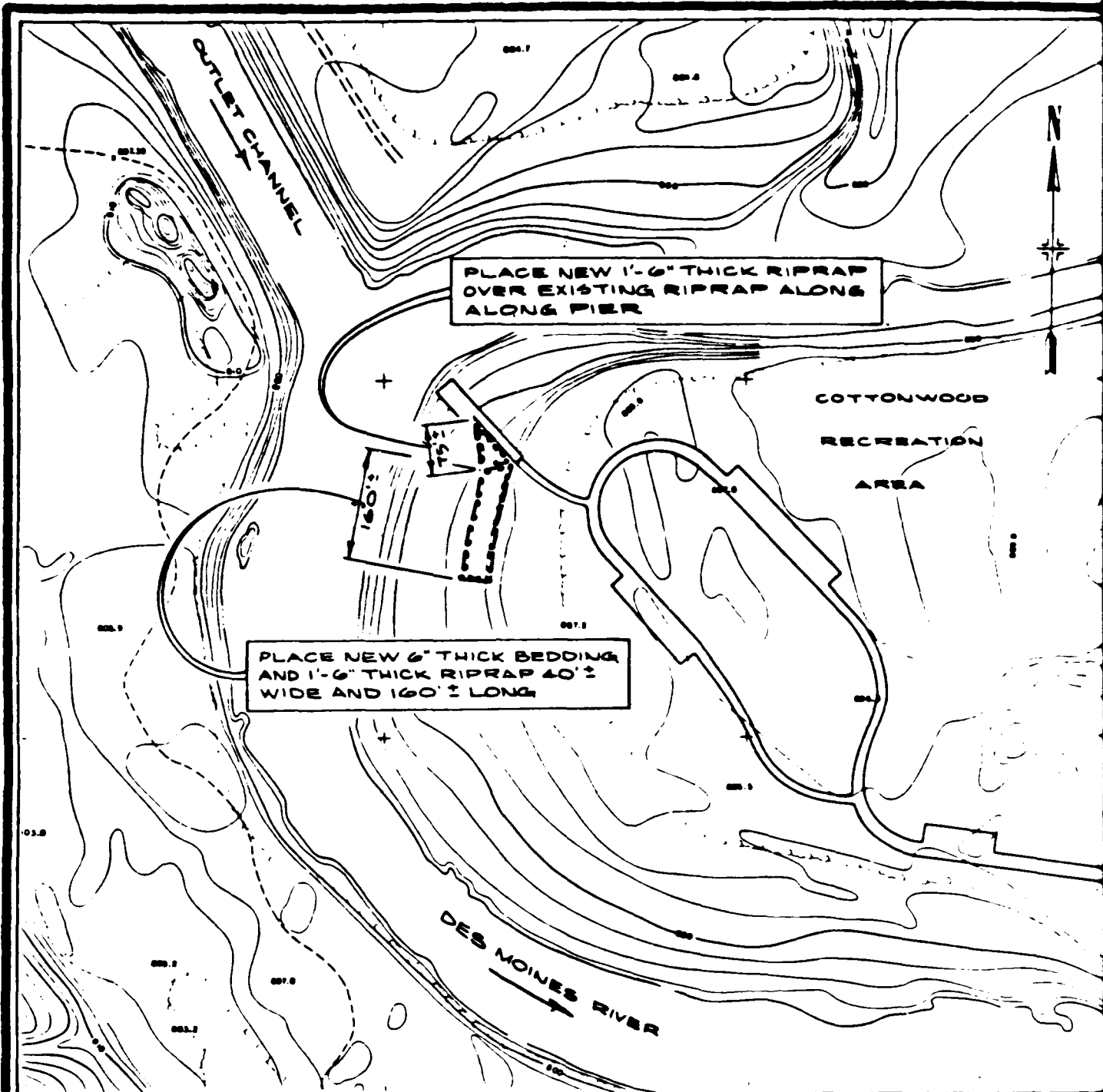
d. Not Applicable. No requirements for the statute required compliance for the current stage of planning.

REFERENCES

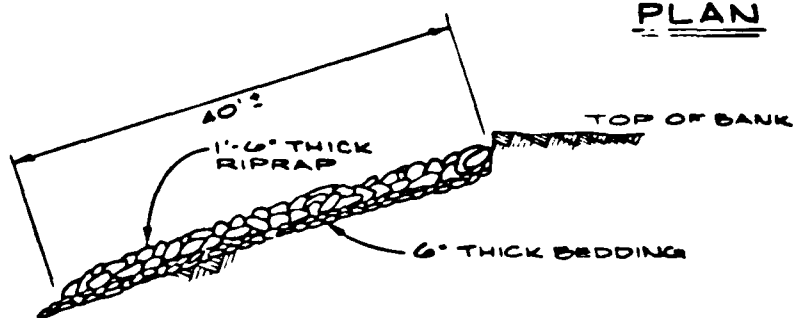
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Rock Island, Illinois.



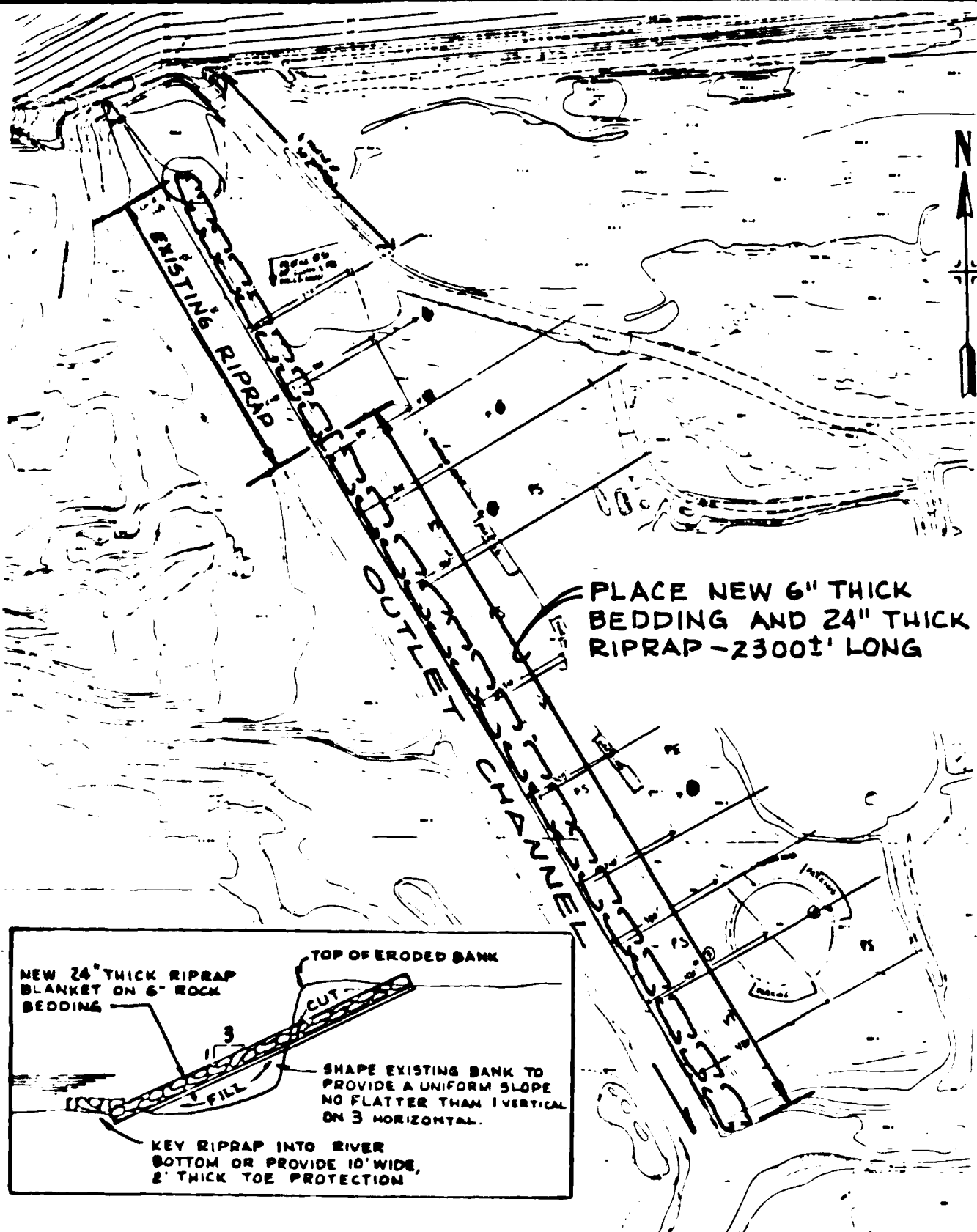


PLAN

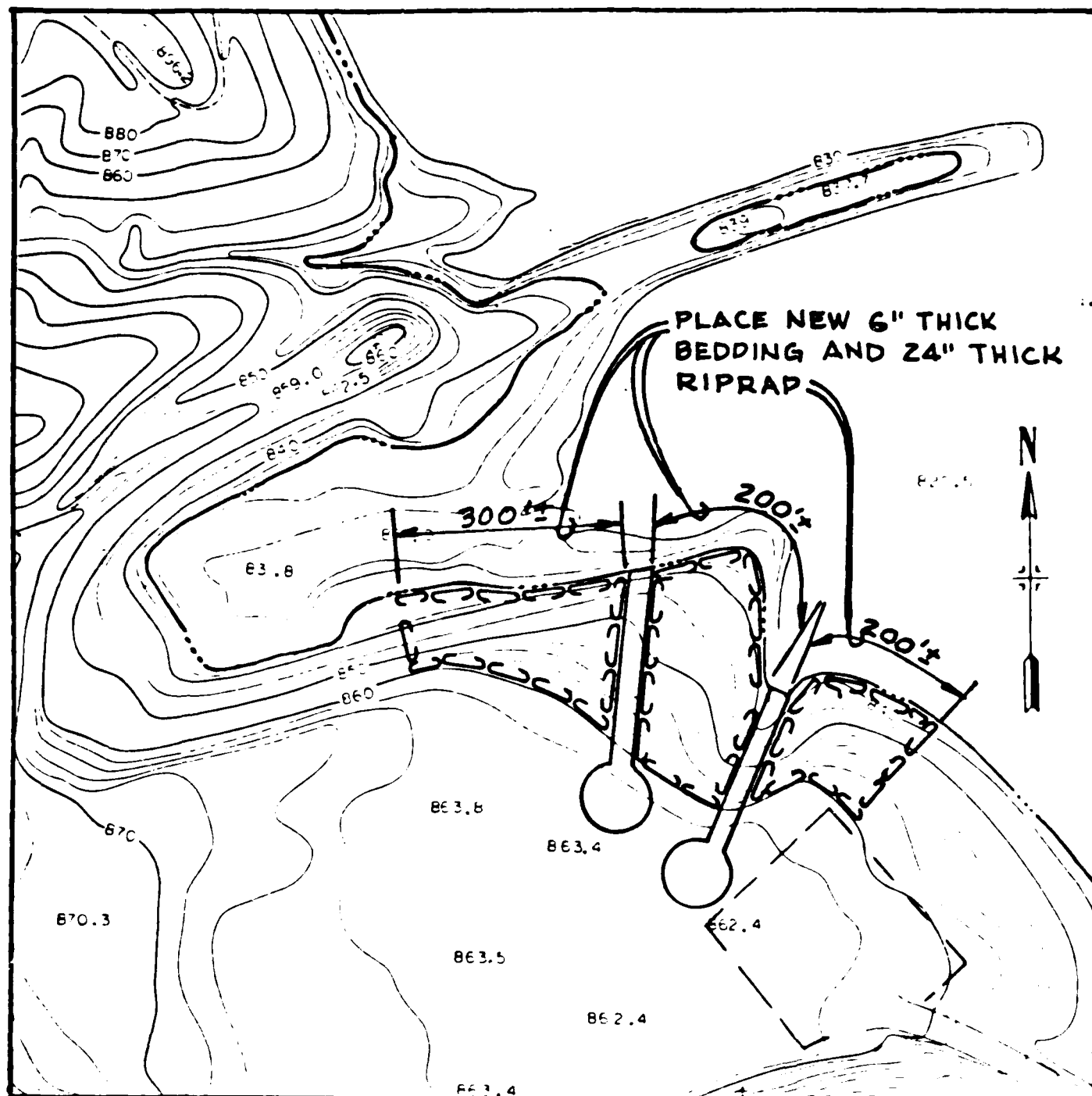
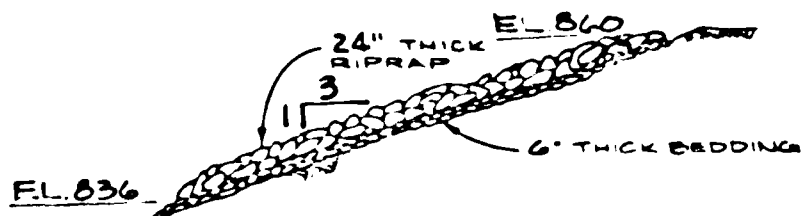
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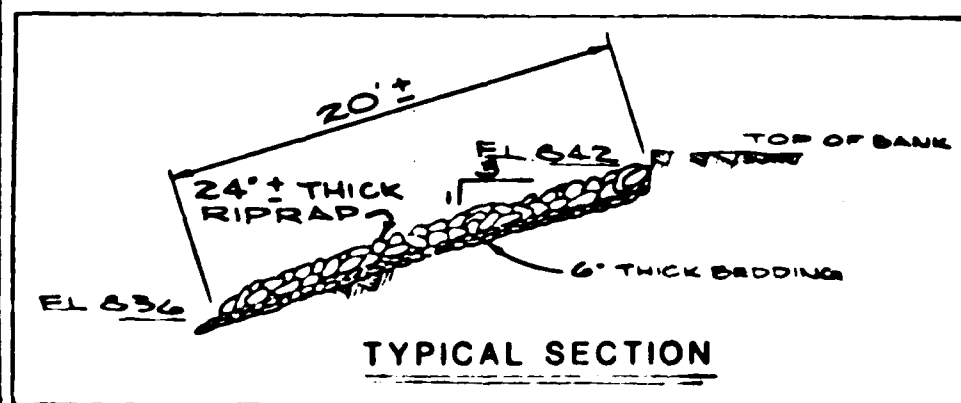
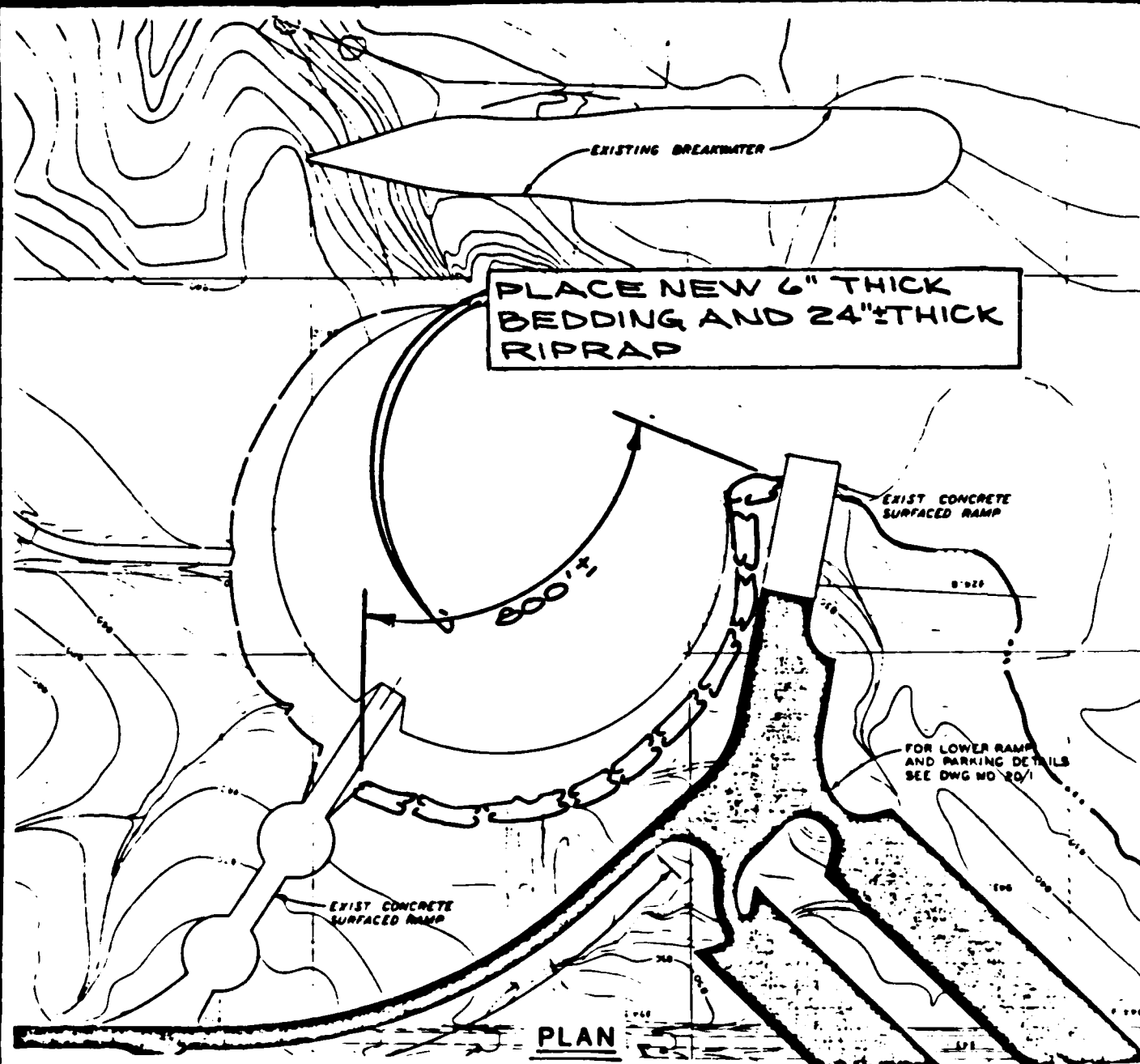
AREA 2
FISHERMAN'S PIER
PLAN AND CROSS SECTION



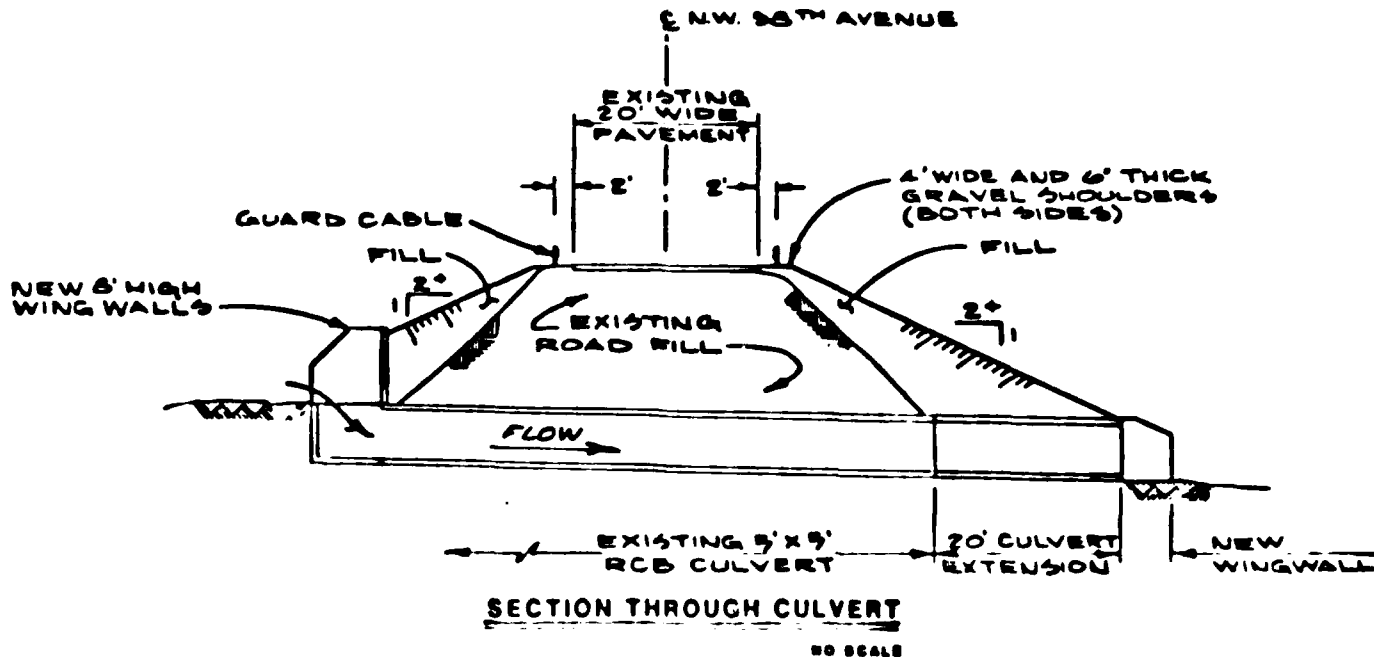
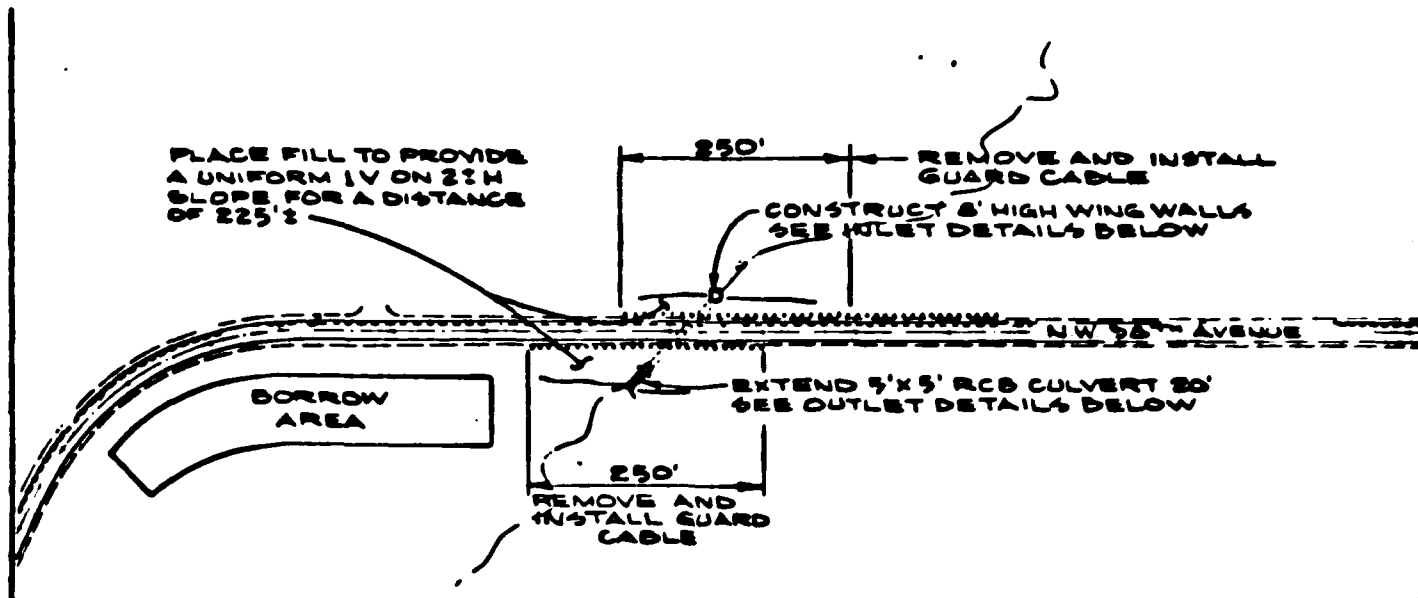
**AREA 3
RECREATION AREA
PLAN AND CROSS SECTION**

PLANTYPICAL SECTION

AREA 4
LAKEVIEW BOAT RAMP
PLAN AND CROSS SECTION



AREA 5
CHERRY GLEN BOAT RAMP
PLAN AND CROSS SECTION



AREA 6
NW 98TH AVE
CULVERT EXTENSION

FINDING OF NO SIGNIFICANT IMPACT

**EROSION CONTROL PROJECTS
AT
SAYLORVILLE RESERVOIR
POLK COUNTY, IOWA**

Having reviewed the information provided by this Environmental Assessment, along with data obtained from cooperating Federal, State, and local agencies and from the interested public, I find that the proposed projects at Saylorville Reservoir will not significantly affect the quality of the environment. Therefore, it is my determination that an Environmental Impact Statement is not required. This determination will be reevaluated if warranted by later developments.

Alternatives considered along with the preferred action include:

- a. No Federal action.

Factors considered in making a determination that an Environmental Impact Statement was not required are as follows:

- a. The action will provide erosion protection to recreational lands and facilities.
- b. Initial loss of vegetation during construction will be offset by the prevention of long-term losses by continued erosion.
- c. Riprapping the shorelines will provide a stable substrate and increased habitat for benthos and other aquatic wildlife.
- d. No significant social, economic, environmental, or cultural impacts are anticipated as a result of these actions.

date

William C. Burns
Colonel, Corps of Engineers
District Engineer

CLEAN WATER ACT
SECTION 404(b)(1) EVALUATION

EROSION CONTROL PROJECTS

AT

SAYLORVILLE RESERVOIR

POLK COUNTY, IOWA

JULY 1986

CLEAN WATER ACT
SECTION 404(b)(1) EVALUATION

EROSION CONTROL PROJECTS
AT
SAYLORVILLE RESERVOIR
POLK COUNTY, IOWA

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CLEAN WATER ACT
SECTION 404(b)(1) EVALUATION

EROSION CONTROL PROJECTS
AT
SAYLORVILLE RESERVOIR
POLK COUNTY, IOWA

SECTION 1 - PROJECT DESCRIPTION

LOCATION

The five project sites are located along the shoreline of Saylorville Reservoir or just below the reservoir along the Des Moines River. All are within Polk County, Iowa. Plate 1 shows the general vicinity of the project sites.

GENERAL DESCRIPTION

Erosion control would involve riprapping of 5,835 feet of shoreline at the five sites to prevent the loss of recreational lands and facilities. This would include the placement of both riprap and bedding rock at Lakeview and Cherry Glen Recreation Areas and at Fisherman's Pier. Bank shaping, in addition to the placement of riprap and bedding rock, would be done at the Bob Shetler and Cottonwood Recreation Areas.

At Fisherman's Pier, 75 feet of existing riprap would receive an additional layer of riprap but no bedding rock.

The Cottonwood Recreation Area contains 1,000 feet of existing riprap which was placed under emergency conditions. This riprap would be pushed down and used as part of the toe prior to the shaping of the bank and placement of new bedding rock and riprap.

Plates 2 through 6 show specific details concerning each project site.

AUTHORITY AND PURPOSE

The development of recreational facilities at Saylorville was initiated at full Federal expense under the direction of Section 4 of the Flood Control Act of 22 December 1944. The development and construction of these facilities has continued at full Federal expense under the authorization of Section 11 of the Water Resources Development Act of 1976. The proposed riprap construction would be implemented to prevent continued erosion and the loss of additional recreational lands and facilities.

GENERAL DESCRIPTION OF DREDGED AND FILL MATERIALS

The bedding material would consist of crushed stone with a maximum size of about 1-1/2 inches. The riprap is larger stone and would consist of boulders or quarried rock. Table 1 below lists amounts of fill materials that would be used.

TABLE 1
Amounts of Fill Materials

Site	Length (ft)	Bedding Rock (tons)	Riprap (tons)
Cottonwood	1,800	2,000	8,000
Fisherman's Pier	235	175	700
Bob Shetler	2,300	2,000	8,000
Lakeview	700	400	1,600
Cherry Glen	800	200	800

DESCRIPTION OF THE PROPOSED DISCHARGE SITES

The Fisherman's Pier and Bob Shetler and Cottonwood Recreation Area sites are located along the east bank of the Des Moines River. Land adjacent to the river consists of mown grasses, barren ground, uncut grasses and forbs, and bottomland forest. The banks are generally composed of sand and, because of active erosion, contain little or no vegetation.

The Lakeview and Cherry Glen sites are located along Saylorville Reservoir. The sites contain boat ramps and receive a lot of recreational use. These areas consist of barren ground and adventitious grasses and forbs.

DESCRIPTION OF DISPOSAL METHOD

Bedding rock and riprap would be hauled in by truck and placed on site. A backhoe or possibly a bulldozer would be used to adjust the fill materials to the correct dimensions. At Bob Shetler and Cottonwood Recreation Areas, a backhoe would be used to shape the slope of the bank.

SECTION 2 - FACTUAL DETERMINATIONS

PHYSICAL SUBSTRATE DETERMINATIONS

In the project areas, the Saylorville Reservoir bottom is covered by varying amounts of fine silt (sediment) carried by the Des Moines River. The Des Moines River below the reservoir contains sand and gravel bars along the main stream, and silt in backwater sloughs and protected areas.

Soil types of the project areas, as listed in the Soil Survey by the U.S. Department of Agriculture, Soil Conservation Service, for Polk County, Iowa, are shown in table 2.

TABLE 2

Soil Types

Sites	Soil Types
Cottonwood	Huntsville sandy loam Dorchester silt loam, moderately shallow over sand Huntsville silt loam Alluvial land
Fisherman's Pier	Alluvial land
Bob Shetler	Alluvial land
Lakeview	Terril loam
Cherry Glen	Kato loam, deep over sand and gravel Ankeny sandy loam Lakeview sandy loam

WATER CIRCULATION, FLUCTUATION, AND SALINITY DETERMINATIONS

WATER

The project sites are all in fresh water. The reservoir area was created by damming the Des Moines River for flood control purposes. The river below the dam consists of 3,500 feet of manmade channel. Downstream of this, the river retains its natural alignment. Both the river and the reservoir are used intensively for recreation and fishing.

CURRENT PATTERNS AND CIRCULATION

The proposed projects would have no effect on current flow patterns and circulation.

NORMAL WATER LEVEL FLUCTUATIONS

Water levels are maintained throughout the year in the reservoir. They are lowered in late winter to elevation 836 (feet above sea level) to accommodate spring floods, and then are raised to elevation 838 in summer-fall to benefit wildlife-waterfowl habitat. The greatest fluctuations occur during periods of high runoff, when large amounts of water may be stored to a maximum elevation of 890.

Water fluctuations on the Des Moines River can vary, depending on the amount of runoff in conjunction with the amount of water being released or stored in the reservoir.

The proposed projects would cause no impacts upon the water level fluctuations of the reservoirs.

ACTION TAKEN TO MINIMIZE IMPACTS

Construction would take place at periods of low water to avoid excess turbidity. Only the required amount of shoreline necessary to prevent erosion would be riprapped.

CONTAMINANT DETERMINATIONS

Bedding rock and riprap would be chemically stable and noncontaminating. The shaping of the banks would take place in a non-industrial, non-commercial area where the soil is not likely to be contaminated.

AQUATIC ECOSYSTEM AND ORGANISM DETERMINATIONS

The proposed actions should not have a significant impact on aquatic ecosystems. Impacts to benthos, plankton, and nekton, as caused by the placement of riprap, would be temporary and minor. The use of riprap would increase habitat diversity by providing stable surfaces and crevices.

There are no Federal threatened or endangered species listed for the project area.

No wetlands or unique or sensitive habitat would be impacted by the proposed project.

PROPOSED DISPOSAL SITE DETERMINATIONS

The placement of riprap along the shorelines will result in minor losses of vegetation and temporary increases in turbidity. Loss of recreational use of the shorelines also would occur during construction.

Certification under Section 401 of the Clean Water Act has been applied for and all requirements will be met.

DETERMINATION OF CUMULATIVE AND SECONDARY EFFECTS ON THE AQUATIC ECOSYSTEM

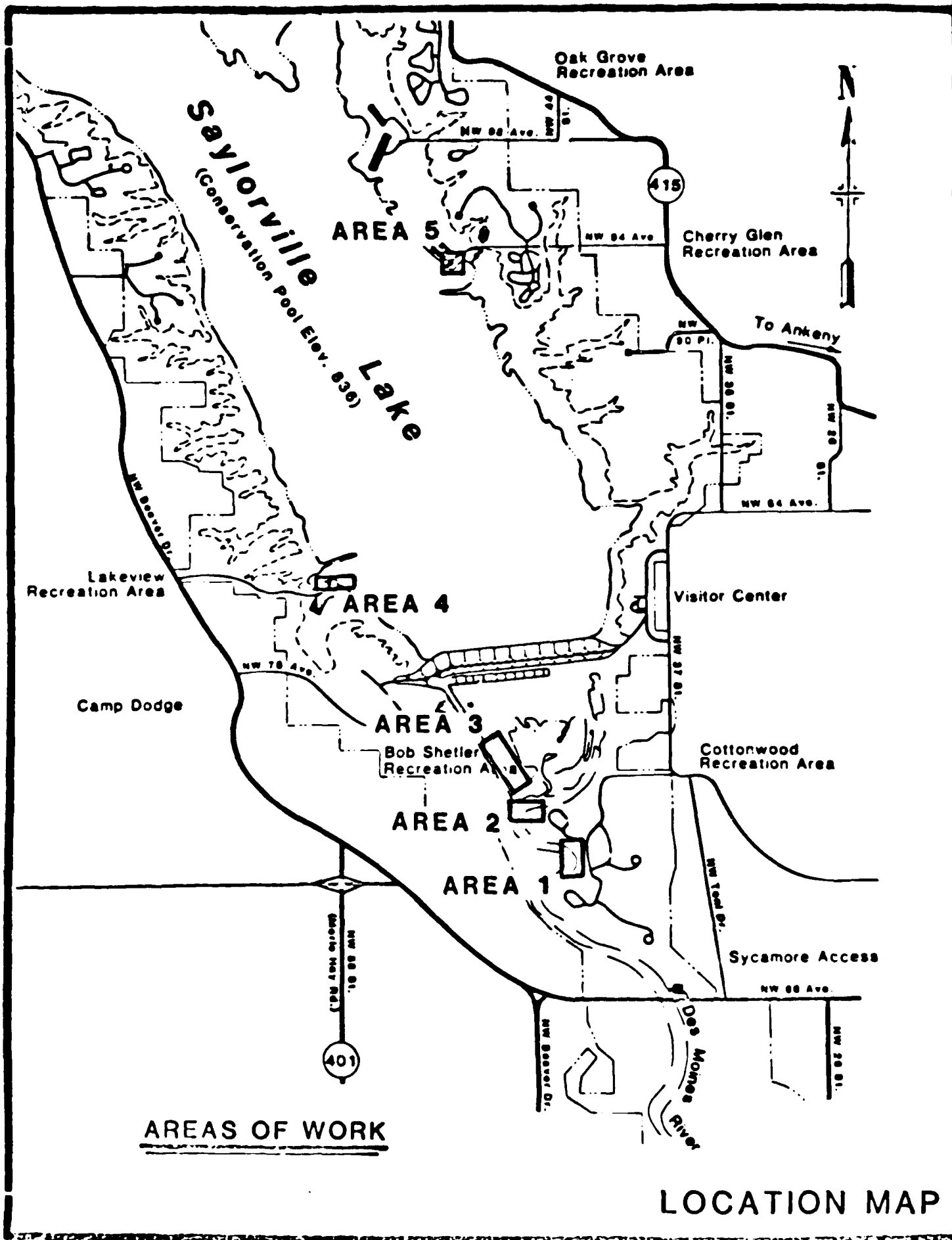
The riprapping is designed to prevent additional losses of recreational land and bottomland forest by continued erosion. Riprapping will provide a stable substrate and add to habitat variety. No detrimental cumulative impacts are expected to occur as a result of this project.

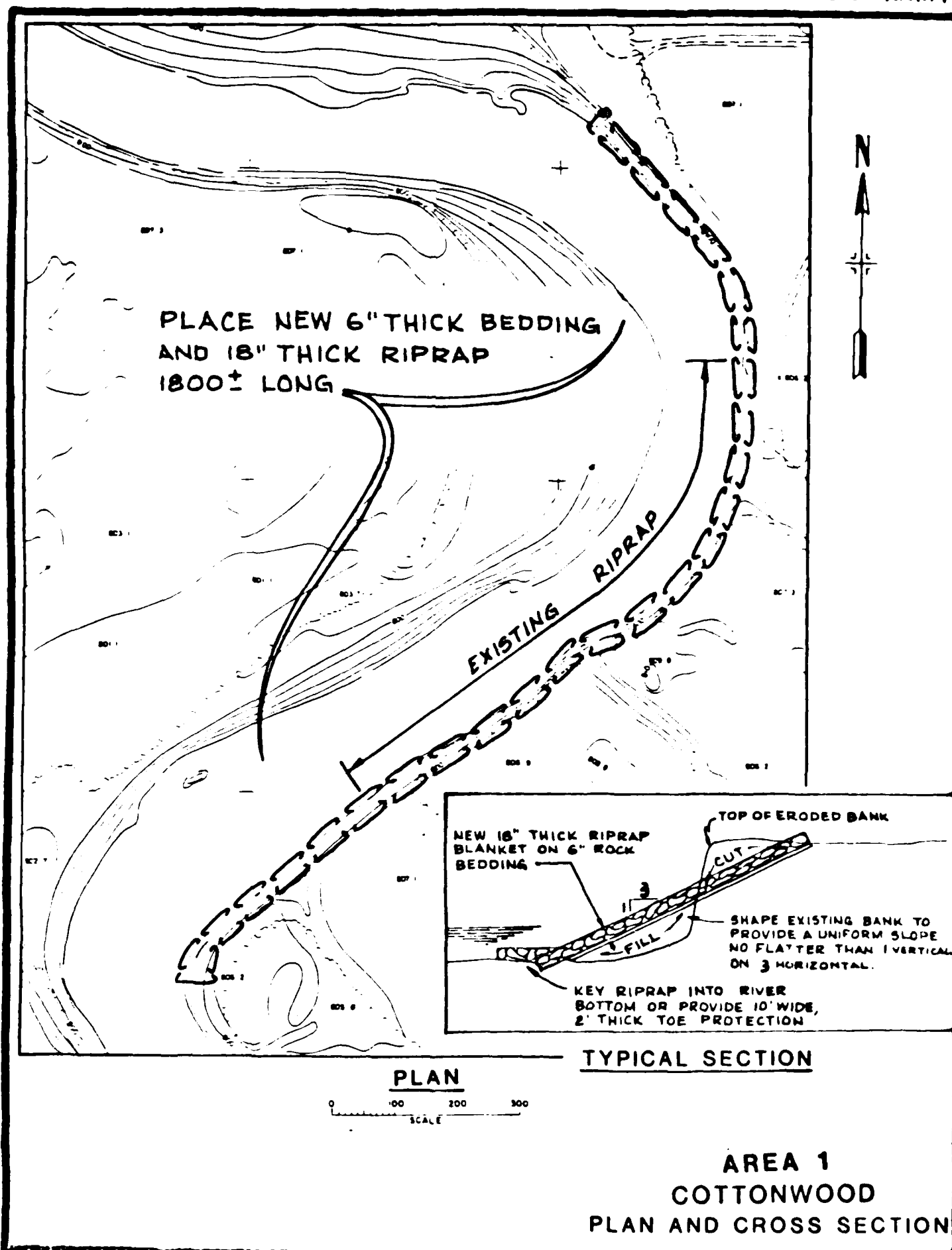
SECTION 3 - FINDINGS OF COMPLIANCE OR
NONCOMPLIANCE WITH THE RESTRICTIONS ON DISCHARGE

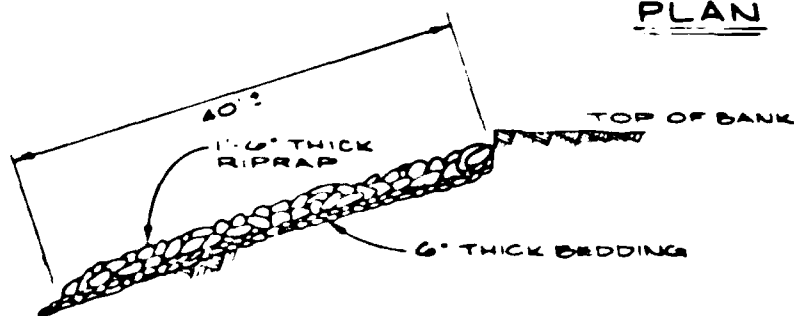
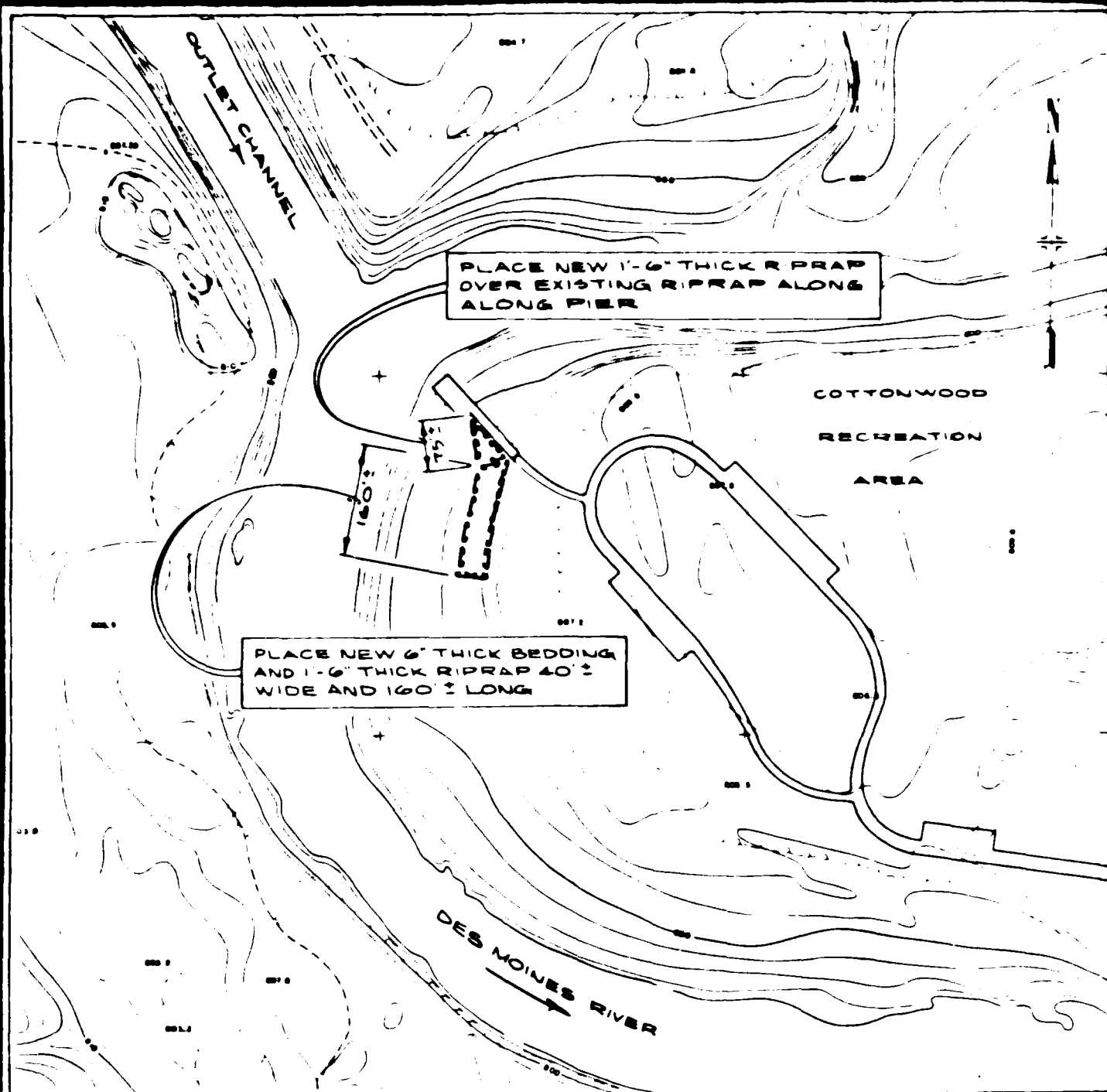
1. No significant adaptations of the guidelines were made relating to this evaluation.
2. The alternative of no Federal action was not feasible because it did not provide erosion protection for recreational lands and facilities.
3. Certification under Section 401 of the Clean Water Act has been applied for from the Iowa Department of Water, Air, and Waste Management. Certification will be obtained before construction begins.
4. The project would not introduce toxic substances into nearby waters or result in appreciable increases in existing levels of toxic materials.
5. No impacts to Federal or State-listed endangered or threatened species will result from this project.
6. The erosion control projects are in inland fresh water systems. No marine sanctuaries are involved.
7. No municipal or private water supplies would be affected. Recreational values would be increased. Minor impacts would result from the construction sites, but an increase in habitat diversity would occur with the use of riprap. No sensitive or critical habitats would be affected, and no long-term impacts would occur.
8. Project construction materials will be physically and chemically stable.
9. The proposed actions will not significantly affect water quality or the aquatic ecosystem and are in compliance with the requirements of guidelines for Section 404(b)(1) of the Clean Water Act, as amended.

Date

William C. Burns
Colonel, Corps of Engineers
District Engineer

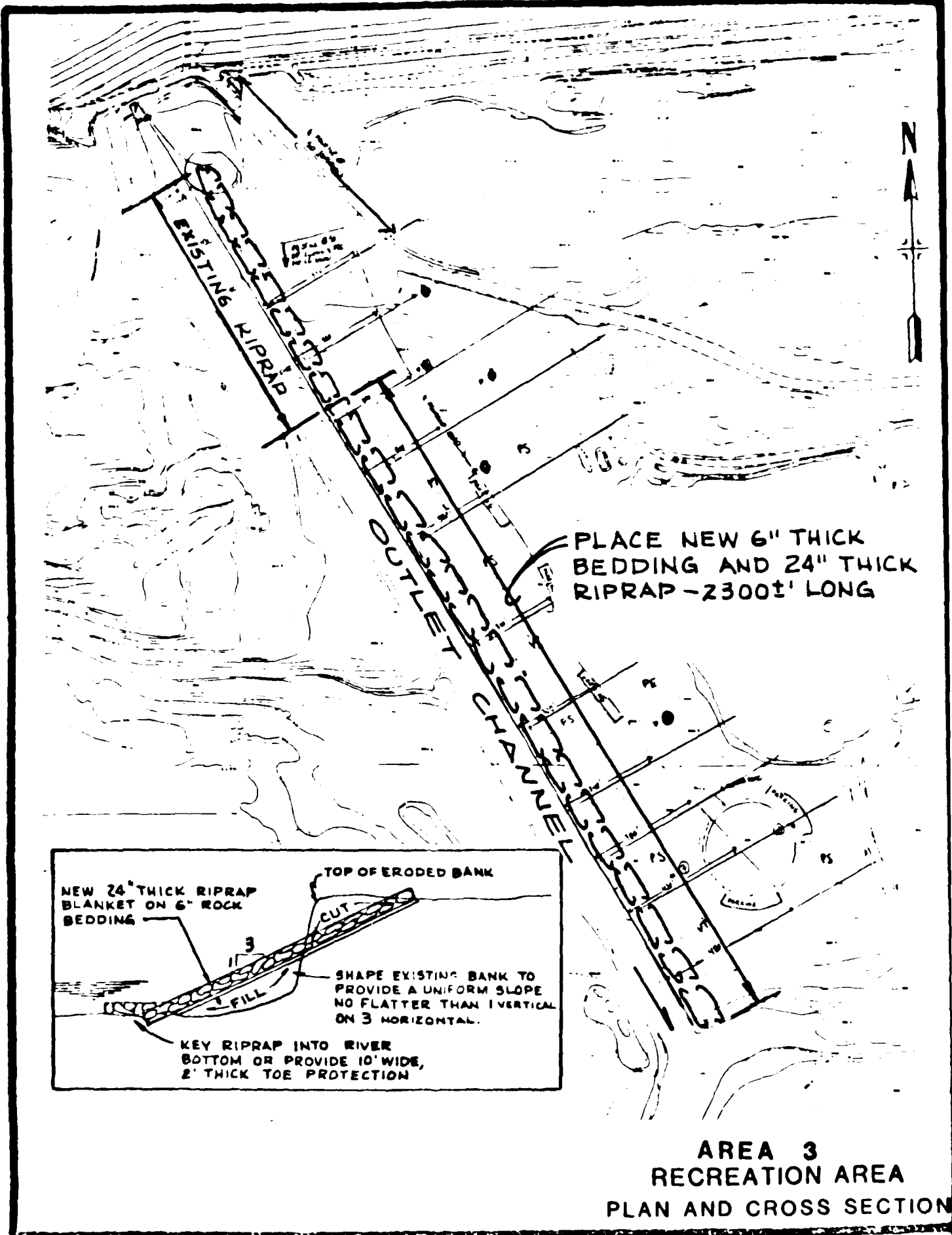


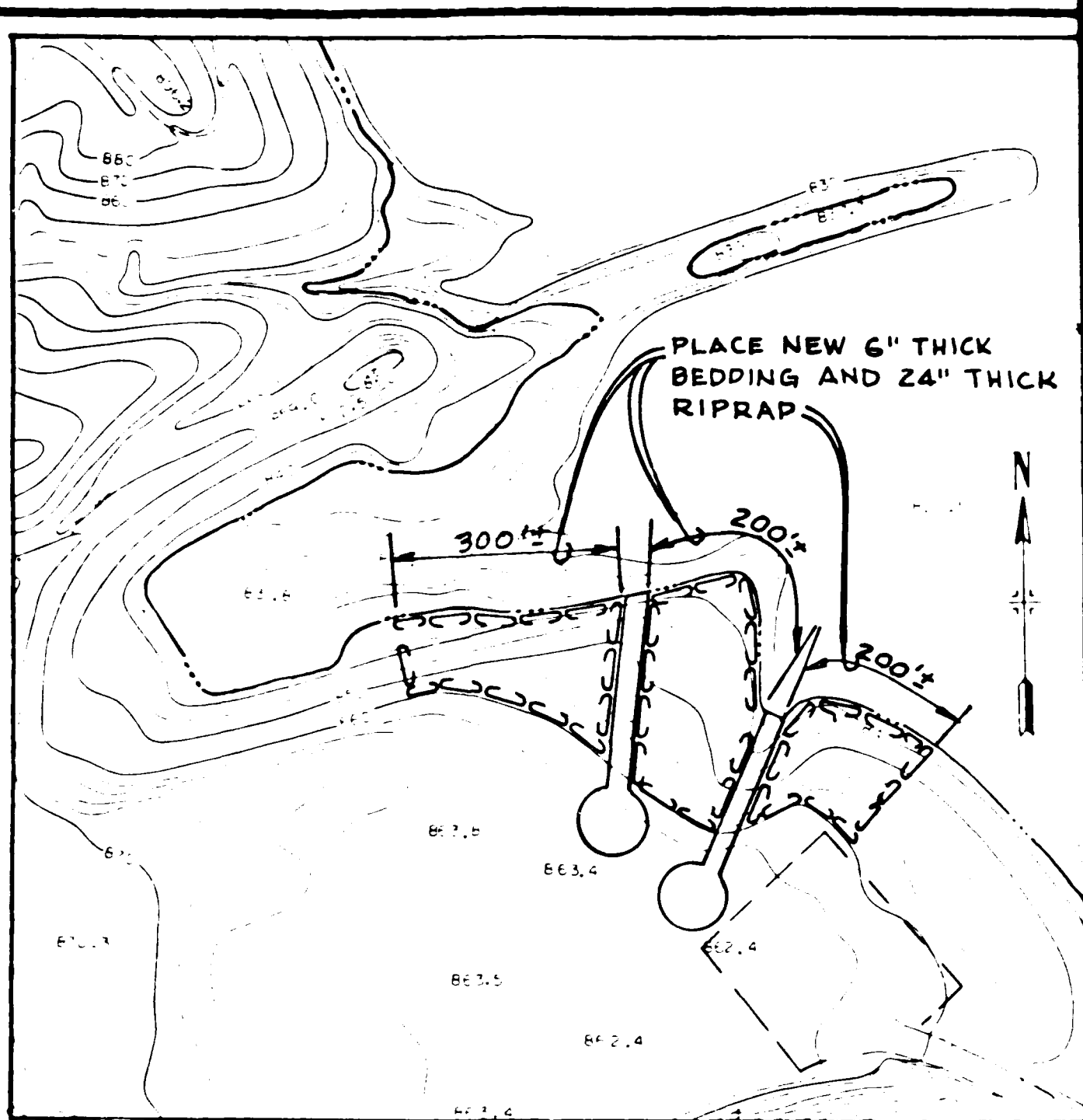
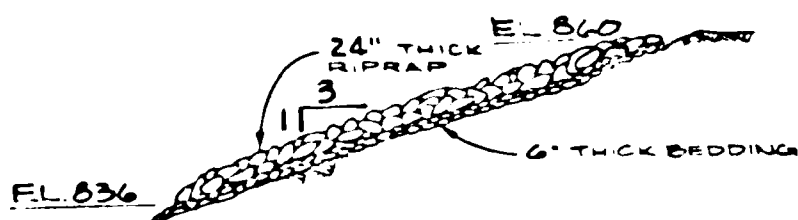




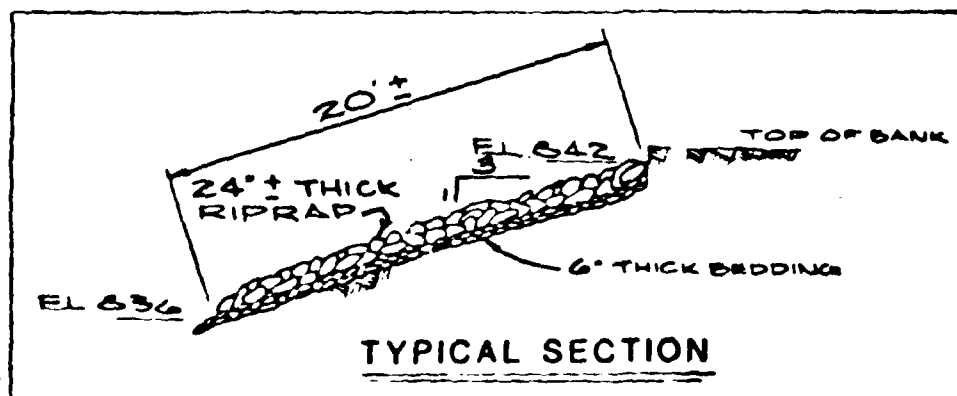
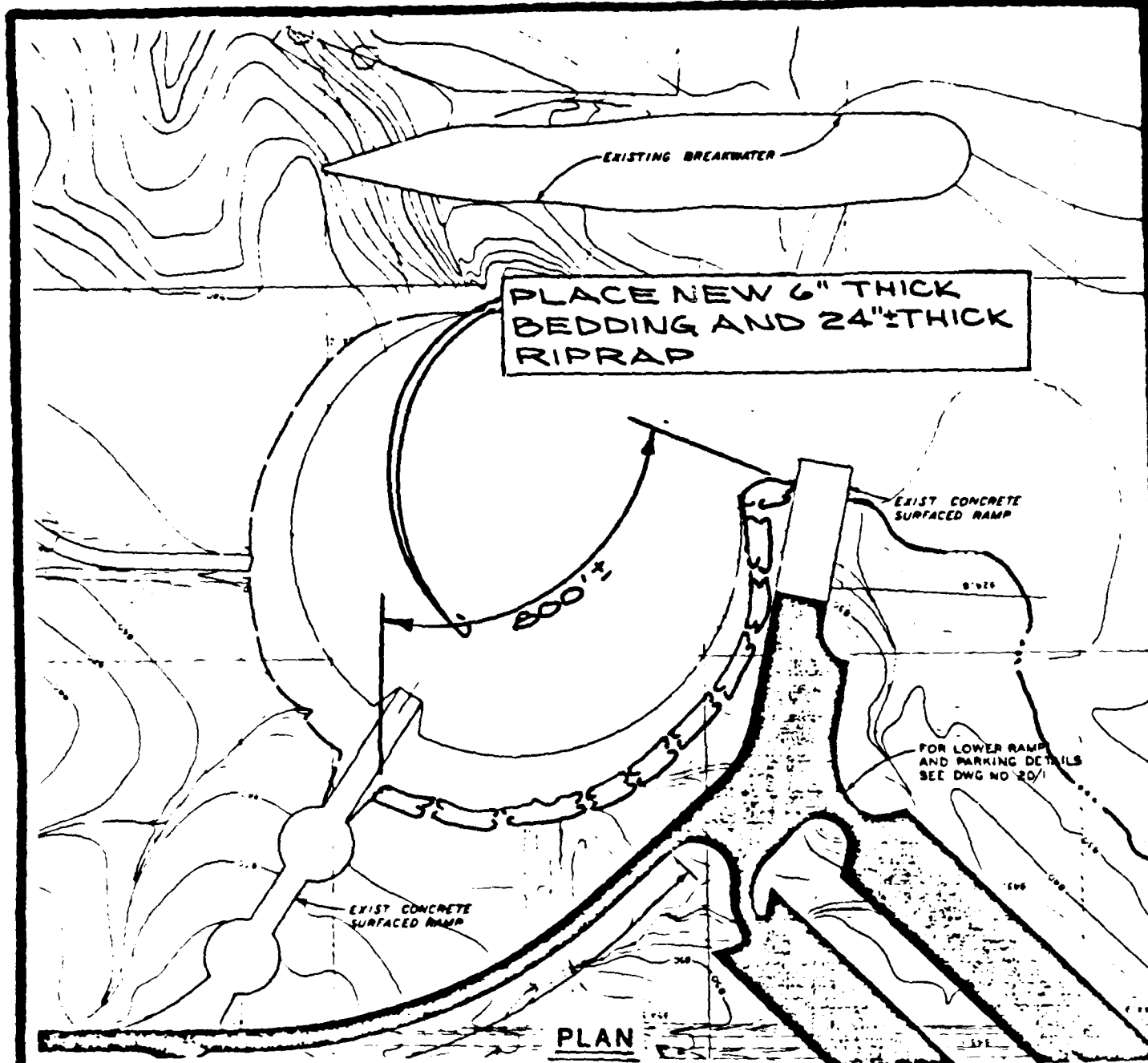
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1"=100' SCALE

AREA 2
FISHERMAN'S PIER
PLAN AND CROSS SECTION



PLANTYPICAL SECTION

AREA 4
LAKEVIEW BOAT RAMP
PLAN AND CROSS SECTION



AREA 5
CHERRY GLEN BOAT RAMP
PLAN AND CROSS SECTION

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